WHAT IS CLAIMED IS:

1. A photoreceptor cleanerless image forming apparatus to overlappingly form yellow, magenta, cyan, and black toner images,

wherein said apparatus is conditioned to decrease color mixture or exposure error with respect to at least one of an exposure intensity, an exposure resolution, a volume-based average particle diameter of toner, a light source wavelength, a layer thickness of toner to be transferred, and the weight-based average charged amount of toner.

2. The image forming apparatus according to claim 1,

wherein said apparatus is a 4-drum tandem image forming apparatus comprising four photoreceptor cleanerless image forming units each including at least a photoreceptor, a charger, an exposure apparatus, and a developing apparatus for overlappingly forming yellow, magenta, cyan, and black images; and

exposure intensities Iy, Ic, Im, and Ik are configured to satisfy conditions of $Ik \geqq Ic \geqq Im \geqq Iy$ and $Ik > Iy$, where said exposure intensities Iy, Ic, Im, and Ik correspond to exposure sources for exposure apparatuses in image forming units to form yellow, magenta, cyan, and black images, respectively.

3. The image forming apparatus according to claim 2,

wherein said image forming unit is provided with a transfer condition so adjusted that the sum of layer thicknesses for untransferred toner and reverse transfer toner becomes

100[g/cm^2] or less during transfer of a solid image.

4. The image forming apparatus according to claim 2, wherein said exposure source complies with a red or near-infrared area whose center wavelength is 630 nm or more.

5. The image forming apparatus according to claim 2, wherein said exposure source is a semiconductor laser.

6. The image forming apparatus according to claim 1, wherein said apparatus is a 4-drum tandem image forming apparatus comprising four photoreceptor cleanerless image forming units each including at least a photoreceptor, a charger, an exposure apparatus, and a developing apparatus for overlappingly
forming yellow, magenta, cyan, and black images; and

exposure resolutions Ry, Rm, Rc, and Rk are configured to satisfy conditions of $Rk \leqq Rc \leqq Rm$ and $Rm > Rk$, where said exposure resolutions Ry, Rm, Rc, and Rk correspond to exposure apparatuses in image forming units to form yellow, magenta, cyan, and black images, respectively.

7. The image forming apparatus according to claim 6, wherein said image forming unit is provided with a transfer condition so adjusted that the sum of layer thicknesses for untransferred toner and reverse transfer toner becomes 100[g/cm^2] or less during transfer of a solid image.

8. The image forming apparatus according to claim 6, wherein said exposure source complies with a red or near-infrared area whose center wavelength is 630 nm or more.

9. The image forming apparatus according to claim 6, wherein said exposure source is a semiconductor laser.

10. The image forming apparatus according to claim 6, wherein beam diameters Dy, Dm, Dc, and Dk are configured to satisfy conditions of $Dk \geqq Dc \geqq Dm \geqq Dy$ and $Dk > Dy$, where said beam diameters Dy, Dm, Dc, and Dk are used for said exposure source to create an electrostatic latent image.

11. The image forming apparatus according to claim 6, wherein said exposure resolution Ry equals said exposure resolution Rk.

12. The image forming apparatus according to claim 1, wherein said apparatus is a 4-drum tandem image forming apparatus comprising four photoreceptor cleanerless image forming units each including at least a photoreceptor, a charger, an exposure apparatus, and a developing apparatus for overlappingly forming yellow, magenta, cyan, and black images; and

exposure resolutions Ry, Rm, Rc, and Rk are configured to satisfy conditions of $Rk \leqq Rc \leqq Rm \leqq Ry$ and $Ry > Rk$, where said exposure resolutions Ry, Rm, Rc, and Rk correspond to image

forming units to form yellow, magenta, cyan, and black images, respectively.

13. The image forming apparatus according to claim 1,

wherein said apparatus comprises four photoreceptor cleanerless developing apparatuses to overlappingly form yellow, magenta, cyan, and black toner images; and

volume-based average particle diameters Pa, Pb, Pc, and Pd are configured to satisfy conditions of $Pa \geqq Pb \geqq Pc \geqq Pd$ and $Pa > Pd$, where Pa, Pb, Pc, and Pd indicate volume-based average particle diameters of toners to be developed on a photoreceptor in the order of development.

14. The image forming apparatus according to claim 13,

wherein said image forming apparatus is configured in 4-drum tandem so that four photoreceptor cleanerless image forming units can overlappingly form yellow, magenta, cyan, and black images on a transfer material.

15. The image forming apparatus according to claim 13,

wherein said image forming apparatus is configured in accordance with a 4-rotation system so that four photoreceptor cleanerless developing apparatuses can overlappingly form yellow, magenta, cyan, and black images on an intermediate transferrer, and then these images are transferred onto a transfer material from said intermediate transferrer at a time.

16. The image forming apparatus according to claim 13, wherein a transfer condition is so adjusted that the sum of layer thicknesses for untransferred toner and reverse transfer toner becomes 100[g/cm^2] or less during transfer of a solid image.

17. The image forming apparatus according to claim 13, wherein said exposure source performs exposure within a red or near-infrared area whose center wavelength is 630 nm or more.

18. The image forming apparatus according to claim 13, wherein said exposure source is a semiconductor laser.

19. The image forming apparatus according to claim 13, wherein the weight-based average charged amounts of yellow, magenta, cyan, and black toners are configured to produce an initial difference within the range of ±5[C/g].

20. The image forming apparatus according to claim 1, wherein said apparatus is a photoreceptor cleanerless image forming apparatus to overlappingly form yellow, magenta, cyan, and black toner images; and

an exposure source used for forming an electrostatic latent image complies with a blue or blue-violet area whose center wavelength is 460 nm or less.

21. The image forming apparatus according to claim 20, wherein said image forming apparatus is provided with a transfer condition so adjusted that the sum of layer thicknesses for untransferred toner and reverse transfer toner becomes 100[g/cm^2] or less during transfer of a solid image.

22. The image forming apparatus according to claim 20, wherein said image forming apparatus is configured in 4-drum tandem so that four photoreceptor cleanerless image forming units can overlappingly form yellow, magenta, cyan, and black images on a transfer material.

23. The image forming apparatus according to claim 20, wherein said image forming apparatus is configured in accordance with a 4-rotation system so that four photoreceptor cleanerless image forming units can overlappingly form yellow, magenta, cyan, and black images on an intermediate transferrer, and then these images are transferred onto a transfer material from said intermediate transferrer at a time.

24. The image forming apparatus according to claim 1, wherein said apparatus is a 4-drum tandem image forming apparatus comprising four photoreceptor cleanerless image forming units each including at least a photoreceptor, a charger, an exposure apparatus, and a developing apparatus for overlappingly forming yellow, magenta, cyan, and black images; and

an exposure source for forming a yellow electrostatic latent image complies with a red or near-infrared area whose center wavelength is 630 nm or more, and an exposure source used for forming at least a cyan electrostatic latent image out of the other electrostatic latent images in the remaining colors complies with a blue or blue-violet area whose center wavelength is 460 nm or less.

25. The image forming apparatus according to claim 24, wherein said exposure source is a semiconductor laser.

26. The image forming apparatus according to claim 24, wherein said image forming unit is provided with a transfer condition so adjusted that the sum of layer thicknesses for untransferred toner and reverse transfer toner becomes 100[g/cm^2] or less during transfer of a solid image.

27. The image forming apparatus according to claim 24, wherein exposure sources for forming magenta and black electrostatic latent images comply with a red or near-infrared area whose center wavelength is 630 nm or more.

28. The image forming apparatus according to claim 24, wherein exposure sources for forming magenta and black electrostatic latent images comply with a blue or blue-violet area whose center wavelength is 460 nm or less.

29. The image forming apparatus according to claim 1, wherein said apparatus is a photoreceptor cleanerless image forming apparatus to overlappingly form yellow, magenta, cyan, and black toner images; and

layer thicknesses Ta, Tb, Tc, and Td are configured to satisfy conditions of $Ta \leqq Tb \leqq Tc \leqq Td$ and $Ta < Td$, where Ta, Tb, Tc, and Td indicate thicknesses of toner layers to be transferred to a transfer material in this order.

30. The image forming apparatus according to claim 29, wherein a ratio between X and Y is greater than or equal to 1/25000 and is smaller than or equal to 1/10, where X indicates a layer thickness of a toner image developed on a photoreceptor during solid image formation, and Y indicates a layer thickness of toner returned to a photoreceptor from a solid toner image already transferred to a transfer material.

31. The image forming apparatus according to claim 29, wherein said image forming apparatus is configured in 4-drum tandem so that four photoreceptor cleanerless image forming units can overlappingly form yellow, magenta, cyan, and black images on a transfer material.

32. The image forming apparatus according to claim 29, wherein said four toner images are formed in the order of yellow, magenta, cyan, and black from upstream to downstream.

33. The image forming apparatus according to claim 29, wherein said image forming apparatus is configured in accordance with a 4-rotation system so that four photoreceptor cleanerless image forming units can overlappingly form yellow, magenta, cyan, and black images on an intermediate transferrer, and then these images are transferred onto a transfer material from said intermediate transferrer at a time.

34. The image forming apparatus according to claim 1, wherein said apparatus is a photoreceptor cleanerless image forming apparatus to overlappingly form yellow, magenta, cyan, and black toner images; and

weight-based average charged amounts Qa, Qb, Qc, and Qd are configured to satisfy conditions of $Qa \leqq Qb \leqq Qc \leqq Qd$ and $Qa < Qd$, where Qa, Qb, Qc, and Qd indicate weight-based average charged amounts of toners to be transferred to a transfer material in this order.

35. The image forming apparatus according to claim 34, wherein volume-based average particle diameters of yellow, magenta, cyan, and black toners are configured to produce an initial difference within the range of ±1[m].

36. The image forming apparatus according to claim 34, wherein volume-based average particle diameters Pa, Pb, Pc, and Pd are configured to satisfy conditions of $Pa \geqq Pb \geqq Pc \geqq Pd$ and $Pa > Pd$, where Pa, Pb, Pc, and Pd indicate volume-based

average particle diameters of toners to be developed on a photoreceptor in this order.

37. The image forming apparatus according to claim 34, wherein layer thicknesses Ta, Tb, Tc, and Td are configured to satisfy conditions of $Ta \leqq Tb \leqq Tc \leqq Td$ and $Ta < Td$, where Ta, Tb, Tc, and Td indicate layer thicknesses of toners to be developed on a photoreceptor in this order.